Dengue fever outbreak

This article on 'Dengue Fever Outbreak: An Analysis of the Present Situation and Comment and Observations' is by Dr. H. I. Karunadasa using his experience in Vietnam, Cambodia, Laos and few other countries in South East Asia and Western Pacific Region and the experience that he has gained by working in the Health Education Bureau of the Health Ministry. This article pinpoints certain areas which he feels important in the future dengue fever control program as it seems that these areas are not receiving adequate attention by the Ministry. Many writers have contributed on the dengue fever outbreak touching on various aspects of the control of the present outbreak. I am confining myself to few important points to illustrate my comments and observations of the present control program. Only salient points are considered for the analysis of the following table.

The above analysis clearly indicates where our attention need to be focused if we are really interested in wiping out this deadly health hazard. I do not wish to go into details but pinpoint specific areas with the experience I have got by working in South East Asian and Western Pacific Region countries where dengue fever is prevailing.

Breeding places

In Vietnam and Cambodia where household surveys have been carried out reveal that roof structures are responsible for about seven percent mosquito breeding. Intensity of breeding places also varies according to the nature of roof structures. It was noted by entomologists that when the environment is clean the mosquitoes prefer to go to roof structures for breeding.

They also resort to tiny places where few drops of clean water stagnate in trees, flowers and roof structures. One can imagine the difficulties in detecting mosquito breeding and the elimination is not that easy as we think of.

I do not know to what extent we have paid our attention to poor roof structures where aedes mosquitoes can breed. It is high time for us to think of the Urban Development Authority Act and other relevant acts and ordinances pertaining to housing development to resort to measures preventing mosquito breeding in roof structures of housing. It should be borne in mind that countries particularly USA got rid of Malaria not by elimination of vector mosquitoes but by resorting to multi disciplinary approaches. We should not heavily depend on the BTI.

Dengue patient

It is assumed that for every reported case of dengue fever there can be

one to two cases of dengue in the immediate vicinity that escape reporting. This assumption which particularly prevails in rural areas of Vietnam and other countries in South Asia is a good hunch that indicates the potential danger of spread of the disease. It is not that easy for a PHI to detect the source infection.

This does not mean that we should neglect screening of any fever cases in the vicinity. We have no knowledge to what extent this has been done by Public Health Personnel in this country. If the assumption is correct the present figure of 21,000 cases would go to about 42,000 to some 60,000 patients. In an outbreak situation like this it is imperative to take all precautionary measures including screening of all fever cases.

Community behaviour

There were clean up campaigns with heavy media coverage. It is a good measure in an epidemic situation, but this sort of clean up campaigns cannot be generalized right through the year.

In spite of all these efforts cases increased right up to the end of June. No sooner rains ceased cases started declining. This shows that breeding places continued and escaped the attention of all including Public Health Personnel until rain ceased for cases to decline.

This is a clear indication that without active community participation environment clean up is leading to an utter failure.

Cuban experts also stressed the need of the active community involvement and the political will to undertake the elimination of breeding grounds from the community and to provide a surveillance system to organize the larvicide program.

Depending on the experience of previous outbreaks of dengue fever I do not know whether we have any epidemiological entomological and ecological classification of any areas classified in terms of case intensity, mosquito breeding behaviour, housing and infrastructure pattern.

If there is any scientific basis as mentioned above it is easier to organize the community groups and attempt the elimination of breeding places and provide an effective base for a good surveillance system to organize the larvicide program. Participatory Representative Techniques (PRT) are widely practised in organizing such community groups.

Larvicide and Surveillance System

To our knowledge, there is no scientific footing to organize an effective surveillance system. If we are really interested to depend on larvicide introduction it is high time to organize a good surveillance system.

As many writers have pointed out in this media we should not solely depend on this larvicide as it is the multi-faceted approach that had been the key for the success in the control of dengue fever in other countries. As mentioned by Cuban experts community participation is the key for the success of any field based program of this nature.

Action planning

I have not seen any reference to action planning in media although there was a wide coverage of the various aspects of the dengue fever and the need for the elimination of breeding places with heavy appeals to the public for their participation. I remember well that once a Vietnamese expert at a workshop remarked that anybody attempting to do a major program without an action plan is something like a blind man trying to hit a stone to a target.

He will never hit the target unless of course if it happens accidentally. Without action planning it will never be possible to carry out the programme effectively, monitor and evaluate the impact to ensure whether we are on a right tract to achieve what we have intended to achieve. It is a pity to note that what we have observed during this outbreak is all ad hoc measures.

Variable responsible	Factors favourable for the persistence of the disease	Present control measures	Weaknesses in present control program	Strong points in program	Actions need to strengthen the program
1. Infected mosquito - aedes Egyptai - *aedes albopictus*	- Breedings escaped the attention of PH personnel - Breedings exist (Government institutions) but no action taken to abate - Entomological studies for vector density not specifically established - Lack of attention during non epidemic periods	- Heavy media coverage urging public to wipe out all breeding places - Mass clean up campaign supported by Media, Political, NGO and interested public. - Prompt attention by Public Health Staff. - Treatment of cases and prompt investigation of reported cases and immediate control measures	- Lack of comprehensive coverage of breeding places. - Entomological studies for vector density not specifically established	- Vector breeding behaviour identified - Strong and comprehensive legal coverage. - Introduction of larvicide - Studies by ITI and proposed introduction of BTI	- Vector density survey and identification of vulnerable areas. - Initiating field based studies for the effective use of surveillance system of larvicide - Studies or exchange of findings on the possibilities of mosquito larvae developing resistance to larvicide.
2. Infected mosquito eggs	Ability to survive the infected mosquito eggs for a longer period under favourable wet conditions	No specific attention and no studies	No specific attention	No comments	Comprehensive clean up of all breeding places particularly gutters
3. Breeding places	- In spite of all intensive efforts breeding places exist. - Environmental pollution still persist	Massive clean up campaigns with media and political support. - Field based activities to wipe out breeding places.	Lack of systematic and organized approach to eliminate breeding places. (e.g. No attention to roof structures)	No comments. Breeding places continue to exist	Enforcement of law to continue irrespective of whether cases exist or not
4. Dengue patients	Inefficiency of the present system (e.g. Coordination) to detect all patients - Absence of screening facilities for the suspected fever cases - Reporting failures	- All Government hospital admissions are well looked after, treated but not promptly reported for investigation by PHII. - Field Public Health 'staff actively engaged in clean up campaigns - Political involvement and good media support	Still cases attended by private medical personnel remain unreported. - Reporting delays and delays in investigations causing unnecessary delays in taking preventive measures	- Prompt investigations of reported cases by PHII - Political involvement and heavy printed /electronic media support. - Availability of larvicide. - Clean up campaigns	- More coordination with private medical institutions for notifications. More facilities at field level during epidemic period for screening of all fever cases with lab.tests.
5. Community behaviour	Sporadic interest of community members seen but there is absolutely no organized community behaviour to function right throughout the year. - The present mass clean up campaigns cannot be generalized to function throughout the year. Absence of an Action Plan with organized community behaviour for the current year - Absence of an organized community infrastructure for the effective application of larvicide	- Good media, political and NGO support to create awareness in the community - Good health infrastructure to reach the community for investigation and surveillance - Investigation and surveillance of reported cases Community support on ad hoc basis	- Lack of training and knowledge in behavioural science to develop strategies for community organization - Lack of study findings (entomological, epidemiological and sociological) to identify specific vulnerable areas - Lack of coordination with other Govt. field level officers.	- Willingness of the community to cooperate with PH staff. And favourable attitudes towards the problem. - Good awareness of the problem due to heavy printed and electronic media coverage.	What is urgently needed is to organize community groups in entomologically and epidemiologically established vulnerable areas and classification of all other areas in terms of intensity and organize a good surveillance system (This is for both elimination of breeding places and use of larvicide.) - The present ad hoc clean up campaigns cannot be generalized right through the year and organized community behaviour should take it up. Training of all PH staff in community organization strategies and strengthen training curricula.
6. *Larvicide bacteria*	Recently introduced. No comments since there is no surveillance system for it take off the ground effectively in Sri Lanka.	No comments.	No comments.	- Integration of Cuban experience on the basis of the report of the epidemiologists - Local discovery of BTI and intended introduction in field locations on experimental basis.	- Establishment of a comprehensive surveillance system with the cooperation of other Government Institutions - Establish organized community groups in vulnerable areas to support effective surveillance system and elimination of breeding places - In depth study and discussion of the report of the Cuban epidemiologists for implementation.
7. Role of Health personnel	No consistent attention during other periods when no cases are reported.	- Treatment of cases by hospital health personnel reported good - Prompt investigation of reported cases by PHII was reported good - Good coordination and support to media, NGOs, Political and L.G. institutional by all health personnel.	- Not involved in organizing organized community behaviour. - Not involved in organizing a good surveillance system. - Lack of training and knowledge on above. Lack of coordination and cooperation with other Govt. institutions.	Willingness and favourable attitudes in applying control measures during the outbreak particularly by non medical personnel.	- More comprehensive training and knowledge in strategies in organizing community groups to support surveillance system. - Develop action planning to identify the role of health personnel in major control programs.
8. Health Education and Media (print and electronic)	- No Action Plan and No Health Education Plan built on that. - Inconsistent approach Field based organized approach is not existing.	- Active support during the outbreak of dengue fever. - Effective cooperation and coordination with other agencies during the outbreak.. Very resourceful and commendable printed and electronic media coverage particularly national media.	- No Action Plan and No Action Health Education Planning for a Major health hazard. - Community organization approach to health education is not efficient enough. - Media coverage would have been excellent if they were fully supported with field based programs.	Dedication of the Media for the extensive coverage. 'Dedication of Public Health Staff to control the outbreak'.	- National Action Plan and on the basis of which National Health Education Action Plan is an urgent necessity. - Identify health education interventions in Action Planning process to sup active and effective surveillance system for the effective implementation of, larvicide.